

- acutus*), Pampas Grass (*Cortaderia* spp.) and Groundsel Bush (*Baccharis halimifolia*); or
3. As a remnant no longer subject to flooding due to flood mitigation or drainage works;
  4. Compacted earth due to grazing with some characteristic species present; or
  5. As a salt laden depression in a paddock with some characteristic species present.

Even where a remnant is considered to be heavily degraded and in poor condition, they are an essential part of healthy estuaries and salty lagoons and have important conservation value for a number of reasons including:

1. As part of a wildlife corridor that has connective importance at local and/or regional scales;
2. Moving plant detritus in estuarine food webs, where it is consumed by estuarine and oceanic fauna and contributes to nutrient cycles;
3. As an important habitat and food source for birds, fish, both aquatic and terrestrial invertebrates and insectivorous bats;
4. For estuary and flood management as they are able to dampen floodwaters, reduce erosion, trap sediments, and recycle nutrients and pollutants;
5. Containing threatened species of flora in there own right such as *Wilsonia backhousei* and *Wilsonia rotundifolia*; and/or
6. Maintaining a healthy native seed bank, very important in highly cleared and fragmented landscapes.

It is important to take these factors into account when determining the conservation significance of remnants.



Samphire (*Sarcocornia quinqueflora*) with Austral Seablite (*Suaeda australis*) in the background.



Creeping Brookwood (*Samolus repens*)

## For further assistance

This and other EEC guidelines are available on DECC Threatened Species website:

[threatenedspecies.environment.nsw.gov.au](http://threatenedspecies.environment.nsw.gov.au)

The references listed below also provide further information to aid in identifying EECs.

- Botanic Gardens Trust plant identification assistance: [rbgsyd.nsw.gov.au/plant\\_info/botanical\\_info/plant\\_identification](http://rbgsyd.nsw.gov.au/plant_info/botanical_info/plant_identification)
- Botanic Gardens Trust PlantNET: [plantNET.rbgsyd.nsw.gov.au/search/simple.htm](http://plantNET.rbgsyd.nsw.gov.au/search/simple.htm)
- Keith, D. A. (2004) *Ocean Shores to Desert Dunes - The native vegetation of NSW and the ACT*. Dept. of Environment and Conservation (NSW)
- Harden, G. (ed) *Flora of NSW Vols 1 – 4* (1990-2002). NSW University Press.
- NSW Scientific Committee Determinations: [nationalparks.nsw.gov.au/npws.nsf/Content/Final+determinations](http://nationalparks.nsw.gov.au/npws.nsf/Content/Final+determinations)
- Coastal Saltmarsh species profile: [threatenedspecies.environment.nsw.gov.au/tsprofile/profile.aspx?id=10866](http://threatenedspecies.environment.nsw.gov.au/tsprofile/profile.aspx?id=10866)
- Robinson, L (2003) *Field guide to native plants of Sydney revised 3rd edition*. Kangaroo Press.
- Thackway, R, and Cresswell, I. (1995) (eds) 'An interim biogeographic regionalisation of Australia: a framework for establishing the national system of reserves.' (Australian Nature Conservation Agency: Canberra).



Saltwater Couch (*Sporobolus virginicus*)

**Disclaimer:** The Department of Environment and Climate Change has prepared this document as a guide only. The information provided is not intended to be exhaustive. It does not constitute legal advice. Users of this guide should do so at their own risk and should seek their own legal and other expert advice in identifying endangered ecological communities. The Department of Environment and Climate Change accepts no responsibility for errors or omissions in this guide or for any loss or damage arising from its use.

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# Coastal Saltmarsh

## Introduction

These guidelines provide background information to assist land managers and approval authorities to identify remnants of Coastal Saltmarsh, an Endangered Ecological Community (EEC). For more detailed information refer to the EEC Profile for Coastal Saltmarsh which includes the Final Determination of the NSW Scientific Committee on the Department of Environment and Climate Change (DECC) Threatened Species website:

[threatenedspecies.environment.nsw.gov.au](http://threatenedspecies.environment.nsw.gov.au)

## What is an Endangered Ecological Community?

An ecological community is an assemblage of species which can include flora, fauna and other living organisms that occur together in a particular area. They are generally recognised by the trees, shrubs and groundcover plants that live there. An Endangered Ecological Community is an ecological community listed as facing a very high risk of extinction in NSW under the *Threatened Species Conservation Act 1995*.

## What is Coastal Saltmarsh?

Coastal Saltmarsh is a mostly treeless plant community recognised by a low mosaic of succulent herbs, salt tolerant grasses and sedges, found in the tidal flats of estuaries and on edges of intermittently opened coastal lagoons. They are characterised by vegetation interspersed with unvegetated patches or salt pans. Coastal saltmarsh is one of a number of interrelated saltwater wetland habitats which includes seagrass beds, mangroves and swamp forests. Many different forms of the Coastal Saltmarsh community are recognised in NSW and many may occur in a mosaic across any one site. See 'Identifying Coastal Saltmarsh' below for further assistance.



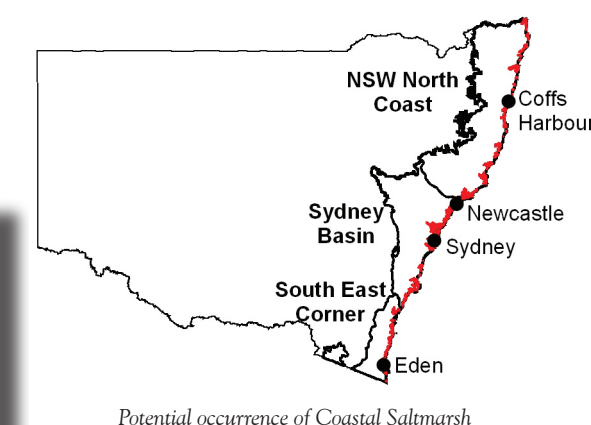
Tyre tracks from driving through Coastal Saltmarsh destroy Saltmarsh vegetation and can persist for over 10 years.



A line of debris can often be seen at the high tide mark of Coastal Saltmarsh. Scattered mangrove trees can also be seen here co-occurring with the Coastal Saltmarsh.

## Where is Coastal Saltmarsh found?

Coastal Saltmarsh is found in the upper limits of the inter-tidal zone of coastal estuaries and saline or brackish lagoons. This means they are only intermittently flooded by medium to high tides and the flora and fauna are specially adapted to highly saline environments (saltier than the sea!). It is often found between mangrove stands and saline forest types such as the EEC, Swamp Oak Floodplain Forest. Communities with similar floristic composition are found on exposed headlands but these headland communities are not part of this EEC. It is found throughout the whole NSW coast in the following Bioregions, NSW North Coast, Sydney Basin and South East Corner bioregions (see map).



Potential occurrence of Coastal Saltmarsh



Natural Heritage Trust

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Description of the community

Characteristic species

A list of plant species that generally characterise Coastal Saltmarsh across its range have been identified by the NSW Scientific Committee (see table).

The tree layer

Coastal Saltmarsh does not have a tree layer but may sometimes include scattered emergent mangrove species such as Grey Mangrove (*Avicennia marina*) or River Mangrove (*Aegiceras corniculatus*).

Small trees and the shrublayer

Scattered or clumped shrubs may emerge from the continuous groundcover such as juvenile mangroves and/or Swamp Paperbark (*Melaleuca ericifolia*), and south of Sydney, the saltbush (*Sclerostegia arbuscula*).

The Groundlayer

Groundcover species that are common across the range of Coastal Saltmarsh include: *Baumea juncea*, Knobby Club Rush (*Ficinia nodosa*), Sea Rush (*Juncus kraussii*), Creeping Brookweed (*Samolus repens*), Samphire (*Sarcocornia quinqueflora*), Swampweed (*Selliera radicans*), Saltwater Couch (*Sporobolus virginicus*), Austral Seablite (*Suaeda australis*), Streaked Arrowgrass (*Triglochin striata*) and Prickly Couch (*Zoysia macrantha*). In brackish areas dense stands of tall reeds (*Phragmites australis*, *Bulboschoenus* spp., *Schoenoplectus* spp., *Typha* spp.) may occur as part of the community. Coastal Saltmarsh in southern NSW is generally more species rich than further north, with Coastal Speargrass (*Austrostipa stipoides*), Saw Sedge (*Gahnia filum*), Native Sea Lavender (*Limonium australe*) and the saltbush *Sclerostegia arbuscula* forming a characteristic southern suite of species.

How can I identify areas of Coastal Saltmarsh?

- The following are 'Key Indicators' to look for when determining whether Coastal Saltmarsh exists on a site:
1. Is the site on the coastal floodplain of the NSW North Coast, Sydney Basin or South East Corner bioregion (see map)?
  2. Is the site close to or on the fringe of a saline or semi-saline coastal estuary or lagoon?
  3. Is there a treeless vegetation community present?
  4. Is the site situated on a flat surface behind a mangrove stand?
  5. Is there any plant species present at the site from those listed as characteristic in Table 1 (See photos on guideline, check with local botanist, consult reference books, see [plantNET.rbg Syd.nsw.gov.au](http://plantNET.rbg Syd.nsw.gov.au))?
- If you answered yes to the above questions your site is likely to consist of Coastal Saltmarsh.



Suaeda australis and Sarcocornia quinqueflora recolonising a mudflat at Sydney Olympic Park

Lucas McKinnon

EECs that may adjoin or intergrade with Coastal Saltmarsh

This community occurs with or would previously have occurred with other Coastal Floodplain vegetation types which are also listed as EECs. Collectively, these EECs cover all remaining native vegetation on the coastal floodplains of NSW. These EECs are:

1. The most saline forms of Swamp Oak Floodplain Forest where there is increasing estuarine influence;
2. Swamp Sclerophyll Forest on Coastal Floodplains where soils become more waterlogged; and
3. Freshwater Wetlands on Coastal Floodplains where they adjoin more permanent standing water.

Determining the conservation value of remnants

The degree of disturbance (i.e. the site condition) of any remnant of Coastal Saltmarsh may vary dependant on past land use, flooding, management practices and/or natural disturbance and this should be considered at the time of assessment. Whilst not exhaustive, the following are a number of variations of Coastal Saltmarsh you may encounter:

1. Unvegetated depressions after damage from vehicular passes or pedestrian traffic;
2. Dense weed incursions of Sharp Rush (*Juncus*)



Wilsonia backhousei a threatened species in NSW.

Lucas McKinnon

Characteristic Species List

Coastal Saltmarsh is characterised by the species listed below. The species present at any site will be influenced by the size of the site, recent rainfall or drought condition and by its disturbance (including fire and grazing) history. There are over 200 plant species that occur in the Coastal Saltmarsh environment and as such NOT ALL the species listed below need to be present at any one site for it to constitute Coastal Saltmarsh.

| Scientific Name  | Common Name (Range)                 |
|--|-------------------------------------|
| Overstorey – Tree or Shrub layer Species (1.5m +)        |                                     |
| <i>Aegiceras corniculatus</i>                            | River Mangrove                      |
| <i>Avicennia marina</i>                                  | Grey Mangrove                       |
| <i>Baccharis halimifolia</i>                             | Groundsel Bush * (W’Gong + N-Coffs) |
| <i>Melaleuca ericifolia</i>                              | Swamp Paperbark (S-P-Macq)          |
| <i>Sclerostegia arbuscula</i>                            | The Saltbush (S-Syd)                |
| Groundcover Species (0-1.5m)                             |                                     |
| Rushes / Grasses / Reeds / Ferns / Herbs                 |                                     |
| <i>Austrostipa stipoides</i>                             | Coastal Speargrass (S-J-Bay)        |
| <i>Baumea juncea</i>                                     | Twig Rush +                         |
| <i>Bolboschoenus</i> species                             | Marsh Club Rush                     |
| <i>Cortaderia</i> species                                | Pampas Grass * (Syd-only)           |
| <i>Ficinia nodosa</i> (formerly <i>Isolepis nodosa</i> ) | Knobby Club Rush +                  |
| <i>Gahnia filum</i>                                      | Saw Sedge (S-Syd)                   |
| <i>Juncus acutus</i>                                     | Sharp Rush *                        |
| <i>Juncus kraussii</i>                                   | Sea Rush +                          |
| <i>Limonium australe</i>                                 | Native Sea Lavender (S-Syd)         |
| <i>Phragmites australis</i>                              | Tall Reed                           |
| <i>Samolus repens</i>                                    | Creeping Brookweed +                |
| <i>Sarcocornia quinqueflora</i>                          | Samphire +                          |
| <i>Selliera radicans</i>                                 | Swampweed + (S-Gos)                 |
| <i>Suaeda australis</i>                                  | Austral Seablite +                  |
| <i>Sporobolus virginicus</i>                             | Saltwater Couch +                   |
| <i>Schoenoplectus</i> species                            | Club Sedge                          |
| <i>Tetragonia tetragonoides</i>                          | Native Spinach                      |
| <i>Triglochin striata</i>                                | Streaked Arrowgrass +               |
| <i>Typha</i> species                                     | Bullrush                            |
| <i>Zoysia macrantha</i>                                  | Prickly Couch +                     |



Sharp Rush (*Juncus acutus*), a weed species commonly found invading Coastal Saltmarsh.



Swampweed (*Selliera radicans*)



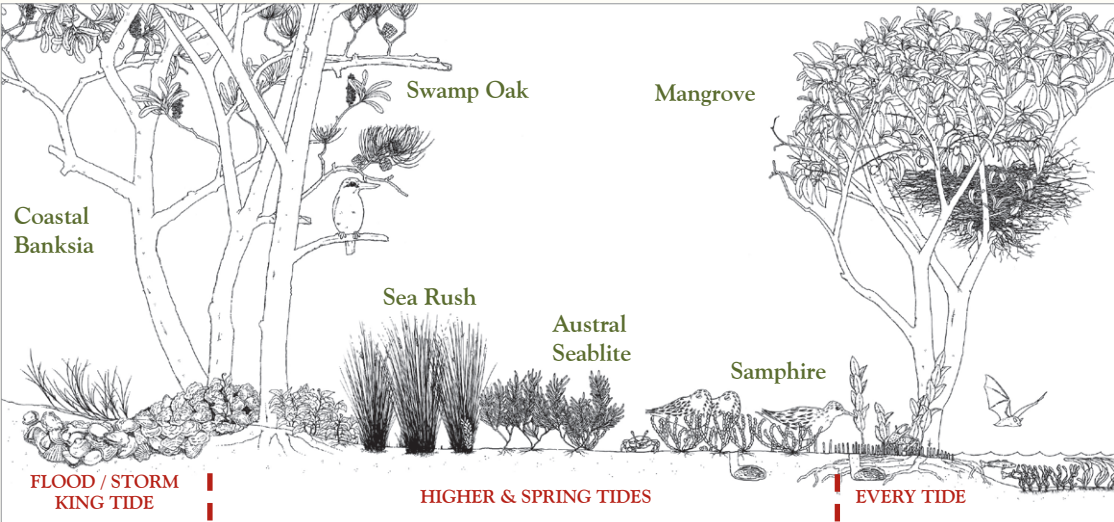
Sea Rush (*Juncus kraussii*)



Prickly Couch (*Zoysia macrantha*)

Illustrations © Botanic Gardens Trust

+ = Key indicator species; \* = Weed species marked; N = North of; S = South of; Coffs = Coffs Harbour; Gos = Gosford; J-Bay = Jervis Bay; P-Macq = Port Macquarie; Syd = Sydney; W’Gong = Wollongong For further help with plant identification see: [plantnet.rbg Syd.nsw.gov.au/search/simple.htm](http://plantnet.rbg Syd.nsw.gov.au/search/simple.htm)



A typical profile of the Coastal Saltmarsh Endangered Ecological Community between Mangroves and Swamp Oak Floodplain Forest. Examples of both the flora and fauna of the ecological community can be seen, including bats, birds and crustaceans.

Courtesy of Hawkesbury Nepean Catchment Management Authority ©